Introduction: The prevalence of obesity among children has exploded in the last 20 years. Obese adults undergoing anesthesia are assumed to have a higher risk of complications including aspiration and post-anesthetic respiratory insufficiency and generally receive intravenous, rapid sequence induction of anesthesia. This is more difficult in the obese, frightened, pediatric patient undergoing elective surgery. The purpose of this study was to determine if anesthesia complications are more common in obese than non-obese children, and whether inhalation induction is appropriate.

Methods: Following institutional review board review, a data base of 1246 children <12 years old who underwent dental procedures from January 1 - December 31, 2003 was identified and the charts retrospectively reviewed. Dental procedures were chosen to be studied because of the minimal systemic impact resulting from the surgery. Data from the charts was examined to determine peri-anesthetic complications including laryngospasm, aspiration, post operative emesis and need for hospital or ICU admission. Method of anesthesia induction and preoperative characteristics were determined including age, body mass index, ASA classification, presence of preoperative upper respiratory infection (URI) or reactive airway disease (RAD). Obesity was defined as body mass index > 95% for age, as has been previously established by the Center for Disease Control. Chi-square analysis was used for group comparison. All anesthesia care was given by dedicated, full time pediatric anesthesiologists.

Results: Inhalation induction was used in 97% of patients (sevoflurane 95%, halothane 2%) and antiemetic prophylaxis given in 99%. The obese and non-obese populations were comparable (table 1) except for a higher representation of older children among the obese (average age 5.6 vs 4.6 years). We could not identify any statistically significant difference in complication rate and outcome in any of the categories studied (table 2).

Discussion: It is widely assumed that general anesthesia among obese individuals is associated with an increased risk of complications, including vomiting during induction and post-operative respiratory insufficiency. Overall, our study failed to show a statistically significant increase in anesthetic risk in this group of patients. A larger study may possibly detect subtle differences. Young children, parents and pediatric anesthesiologists most often prefer a smooth inhalation induction of anesthesia over intravenous induction, particularly if finding a suitable vein is perceived to be challenging, as in the chubby child. We find it reassuring that in the hands of pediatric anesthesiologists, the moderately obese child having minor surgery can undergo general anesthesia safely with few modifications to accepted inhalation techniques and no obvious increase in complications. Caution should be exercised, however, in extrapolating these conclusions to the morbidly obese child.